CLAIMS

1. A process for recovering an active catalyst component from a process stream containing, in addition to dissolved active catalyst component, also at least aldols, acetals and/or esters, which process includes

admixing an alcohol component comprising at least one C_1 to C_{10} alcohol, with the process stream to form solid active catalyst component; and

recovering the solid active catalyst component from a residual alcohol-rich phase.

2. A process according to Claim 1, wherein the process stream is a hydroformylation process heavies purge stream, while the active catalyst component comprises a metal/carbon monoxide/ligand complex and, optionally, free ligand.

3. A process according to Claim 1 or Claim 2, wherein the alcohol component comprises at least one C_1 to C_{10} monohydric alcohol and/or at least one C_1 to C_{10} dihydric alcohol.

4. A process according to Claim 3, wherein the alcohol of the alcohol component is in concentrated or undiluted form.

5. A process according to Claim 4, wherein the alcohol component comprises a concentrated monohydric alcohol having 1 to 3 carbon atoms.

6. A process according to Claim 5, wherein the monohydric alcohol of the alcohol component is concentrated methanol or concentrated ethanol.

7. A process according to Claim 4, wherein the alcohol component comprises a concentrated dihydric alcohol having 2 to 8 carbon atoms.

8. A process according to Claim 7, wherein the dihydric alcohol component of the alcohol component is concentrated ethylene glycol or concentrated propylene glycol.

9. A process according to Claim 4, wherein the alcohol component comprises a mixture of at least two concentrated C_1 to C_{10} alcohols.

10. A process according to any one of Claims 1 to 9 inclusive, wherein the alcohol component, on admixture thereof with the process stream, is at a temperature below room temperature and above its freezing temperature.

11. A process according to Claim 10, wherein the alcohol component is at a temperature below 0°C.

12. A process according to any one of Claims 1 to 11 inclusive, wherein the formation of the solid active catalyst component is by means of precipitation or crystallization.

13. A process according to any one of Claims 1 to 12 inclusive, which includes subjecting the process stream, after admixture of the alcohol component therewith, to centrifugation.

14. A hydroformylation process, which includes

reacting, in a reaction zone and in the presence of a hydroformylation catalyst, and at elevated temperature and pressure, an olefin-containing feedstock with carbon monoxide and hydrogen, to form aldehydes and/or alcohols;

withdrawing a reaction mixture comprising the alcohols, the aldehydes, unreacted feedstock, catalyst residue, heavies and, optionally, unreacted gaseous reactants, from the reaction zone;

in a separation zone, separating a gaseous phase from a liquid phase comprising the aldehydes, alcohols, unreacted feedstock, the heavies and the catalyst residue;

in a distillation zone, subjecting the liquid phase to distillation;

withdrawing from the distillation zone, as an overheads component, the alcohols, aldehydes and unreacted feedstock;

withdrawing from the distillation zone, as a bottoms component, the heavies and the catalyst residue, which comprises an active catalyst component and at least some of which is in solution;

admixing an alcohol component comprising at least one C_1 to C_{10} alcohol, with at least a portion of the bottoms component to form solid catalyst component; and

recovering the solid active catalyst component from a residual alcohol-rich phase.

15. A process according to Claim 14, wherein the active catalyst component comprises a metal/carbon monoxide/ligand complex and, optionally, free ligand.

16. A process according to Claim 14 or Claim 15, which includes recycling a portion of the bottoms component to the reaction zone, with the portion thereof that is admixed with the alcohol component thus constituting a heavies purge stream that is withdrawn.

17. A process according to Claim 16, wherein no dilution of the bottoms component, at least prior to the withdrawal of the heavies purge stream therefrom, or of the heavies purge stream, with a saturated or unsaturated aliphatic hydrocarbon having 3 to 20 carbon atoms or with an aromatic or hydrocarbyl-substituted aromatic hydrocarbon having from 6 to 22 carbon atoms, takes place.

18. A process according to any one of Claims 14 to 17 inclusive, wherein the alcohol component comprises at least one C_1 to C_{10} monohydric alcohol and/or at least one C_1 to C_{10} dihydric alcohol.

19. A process according to Claim 18, wherein the alcohol of the alcohol component is in concentrated or undiluted form.

20. A process according to Claim 19, wherein the alcohol component comprises a concentrated monohydric alcohol having 1 to 3 carbon atoms.

21. A process according to Claim 20, wherein the monohydric alcohol of the alcohol component is concentrated methanol or concentrated ethanol.

22. A process according to Claim 19, wherein the alcohol component comprises a concentrated dihydric alcohol having 2 to 8 carbon atoms.

23. A process according to Claim 22, wherein the dihydric alcohol component of the alcohol component is concentrated ethylene glycol or concentrated propylene glycol.

24. A process accoding to Claim 19, wherein the alcohol component comprises a mixture of at least two concentrated C_1 to C_{10} alcohols.

25. A process according to any one of Claims 14 to 24 inclusive, wherein the alcohol component, on admixture thereof with the bottoms component, is at a temperature below room temperature and above its freezing temperature.

26. A process according to Claim 25, wherein the alcohol component is at a temperature below 0°C.

27. A process according to any one of Claims 14 to 26 inclusive, wherein the formation of the solid active catalyst component is by means of precipitation or crystallization.

28. A process according to any one of Claims 14 to 27 inclusive, which includes subjecting the bottoms component, after admixture of the alcohol component therewith, to centrifugation.